

REMARKS

In the Office Action dated March 27, 2002, claims 1-16 are noted as pending. Claims 9-16 are rejected under 35 USC 112, first paragraph. Claims 1-16 are rejected under 35 USC 112, second paragraph. Claims 1-7 and 9-15 are rejected under 35 USC 102(e) as being anticipated by Hiraga, U.S. Patent No. 6,091,089 (Hiraga). Claims 8 and 16 are rejected under 35 USC 103(a) as being unpatentable over Hiraga.

OBJECTIONS TO DRAWINGS

Claim 9 has been amended to remove reference to "lead fingers". A lead frame and a bond wire are shown in Figure 1.

Reference numbers 230 through 237 are found at line 9 on page 2 of the specification. The specification has been amended to add mention of reference numbers 250 and 257.

REJECTIONS UNDER 35 U.S.C. 112

Claim 9 has been amended to eliminate the term "lead fingers". Further, Applicant respectfully contends that a lead frame coupled to bond pads via bond wires is an old practice and very well established in the art. Any person skilled in the art would be enabled to couple a lead frame to a plurality of bond pads via bond wires without specific description in the specification.

Claims 1, 3, 9, and 11 have been amended to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

REJECTIONS UNDER 35 U.S.C. 102

Hiraga does not disclose "a first plurality of driver cells located nearer to a nearest die edge than the plurality of bond pads; and a second plurality of driver cells located farther from the nearest die edge than the plurality of bond pads,," as claimed in amended claims 1 and 9. Rather, Hiraga discloses that the bond pads 6 and 7 are located nearer to the die edge than the driver circuits 10 (see for example figures 2 and 3). Therefore,

claims 1 and 9 are distinguished over Hiraga. Dependent claims 2-9 and 10-16 are also distinguished over Hiraga.

REJECTIONS UNDER 35 U.S.C. 103(a)

As discussed above, claims 9 and 16 are distinguished over Hiraga. Therefore, claims 9 and 16 are patentable over Hiraga.

CONCLUSION:

In view of the foregoing, Applicant submits that claims 1-16 are distinguished over the cited art and are in condition for allowance. Allowance of claims 1-16 is respectfully requested.

DEPOSIT ACCOUNT AUTHORIZATION

Authorization is hereby given to charge our Deposit Account No. 02-2666 for any charges that may be due.

Respectfully submitted,

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Dated: 6/29/02

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the claims:

1. (Once Amended) An apparatus, comprising:
a plurality of bond pads configured in an array;
a first plurality of driver cells located [to the outside of] nearer to a nearest die edge than the plurality of bond pads; and
a second plurality of driver cells located [to the inside of] farther from the nearest die edge than the plurality of bond pads.
2. The apparatus of claim 1, wherein the plurality of bond pads are configured in a staggered array.
3. (Once Amended) The apparatus of claim 2, further comprising a plurality of pre-drive cells located [to the inside of] farther from the nearest die edge than the second plurality of driver cells.
4. The apparatus of claim 3, wherein the plurality of bond pads are configured in a staggered array including an inner ring and an outer ring of bond pads.
5. The apparatus of claim 4, further comprising a plurality of metal connections, each of the plurality of metal connections to couple one of the first and second pluralities of driver cells to one of the plurality of bond pads.

6. The apparatus of claim 5, further comprising a plurality of conductive interconnects, each of the plurality of pre-driver cells coupled to one of the first and second pluralities of driver cells by at least one of the plurality of conductive interconnects.

7. The apparatus of claim 6, each the plurality of conductive interconnects substantially more narrow in width than each of the plurality of metal connections.

8. The apparatus of claim 7, the first and second pluralities of driver cells each having a width of approximately 80 microns.

9. (Once Amended) A semiconductor device, comprising:

a die including

a plurality of bond pads configured in an array,

a first plurality of driver cells located [to the outside of] nearest to a nearest die edge than the plurality of bond pads, and

a second plurality of driver cells located [to the inside of] farther from the nearest die edge than the plurality of bond pads; and

a lead frame [including a plurality of lead fingers, the plurality of lead fingers]

coupled the plurality of bond pads by a plurality of bond wires.

10. The semiconductor device of claim 9, wherein the plurality of bond pads are configured in a staggered array.

11. (Once Amended) The semiconductor device of claim 10, further comprising a plurality of pre-drive cells located [to the inside of] farther from the nearest die edge than the second plurality of driver cells.

12. The semiconductor device of claim 11, wherein the plurality of bond pads are configured in a staggered array including an inner ring and an outer ring of bond pads.

13. The semiconductor device of claim 12, further comprising a plurality of metal connections, each of the plurality of metal connections to couple one of the first and second pluralities of driver cells to one of the plurality of bond pads.

14. The semiconductor device of claim 13, further comprising a plurality of conductive interconnects, each of the plurality of pre-driver cells coupled to one of the first and second pluralities of driver cells by at least one of the plurality of conductive interconnects.

15. The semiconductor device of claim 14, each the plurality of conductive interconnects substantially more narrow in width than each of the plurality of metal connections.

16. The semiconductor device of claim 15, the first and second pluralities of driver cells each having a width of approximately 80 microns.